

### **REMARKS**

In response to the Final Office Action dated April 13, 2006, Applicants respectfully request reconsideration based on the above claim amendments and the following remarks. Applicants respectfully submit that the claims as presented are in condition for allowance.

Claims 1-17 are pending in the present Application. Claims 12-16 were withdrawn in a previous Action. The Examiner has objected to the Title of the Invention as being nondescript. The Applicants have amended the Title of the Invention as suggested by the Examiner. Claims 1 and 7 have been amended, claims 8-10 have been cancelled, and new claim 18 has been added, leaving claims 1-7, 11, 17, and 18 for examination upon entry of the present amendments.

The Applicants submit that claims 1-7, 11, 17 and 18 are in condition for allowance and request reconsideration and withdrawal of the outstanding rejections. No new matter has been entered.

#### **Claim Rejections Under 35 USC § 103**

The Examiner has rejected claims 1-3, 5-8, 10 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Wu (U.S. Patent Publication No. 2002/0030768) in view of Moon et al. (U.S. Patent No. 6,778,238). The Examiner has stated that Wu discloses all elements of the abovementioned claims, except *that one of the color pixels is red* of claim 1, which the Examiner has further stated is disclosed primarily in Moon et al.

The Examiner has also rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Wu (U.S. Patent Publication No. 2002/0030768) in view of Moon et al. (U.S. Patent No. 6,778,238) and further in view of Matsumoto et al. (U.S. Patent No. 4,097,128). The Examiner has stated that Wu and Moon et al., in combination, disclose all elements of the abovementioned claim, except *the wavelength range from about 600nm to 700nm*, which the Examiner has further stated is taught primarily in col. 20, lines 1-2, of Matsumoto et al.

The Examiner has further rejected claims 1-3, 7-9, and 11 under 35 U.S.C. § 103(a) as being unpatentable over Hack et al. (U.S. Patent Publication No. 5,204,661) in view of Moon et al. (U.S. Patent No. 6,778,238). The Examiner has stated that Hack et al. disclose all elements of the abovementioned claims, except *the color pixels including red, green, and blue color pixels*, which the Examiner has further stated is taught primarily in Moon et al.

In addition, the Examiner has rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Hack et al. (U.S. Patent Publication No. 5,204,661) in view of Moon et al. (U.S. Patent No. 6,778,238) and further in view of Matsumoto et al. (U.S. Patent No. 4,097,128). The Examiner has stated that Hack et al. and Moon et al., in combination, disclose all elements of the abovementioned claims, except *that the red light has a wavelength range from about 600nm to about 700nm*, which the Examiner has further stated is taught primarily in col. 20, lines 1–2, of Matsumoto et al.

Furthermore, the Examiner has rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Hack et al. (U.S. Patent Publication No. 5,204,661) in view of Moon et al. (U.S. Patent No. 6,778,238) and further in view of Cook et al. (U.S. Patent Publication No. 2002/0021291). The Examiner has stated that Hack et al. and Moon et al., in combination, disclose all elements of the abovementioned claims, except *the external light being white*, which the Examiner has further stated is taught primarily in paragraphs [0028]–[0030], of Cook et al.

Also, the Examiner has rejected claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Hack et al. (U.S. Patent Publication No. 5,204,661) in view of Moon et al. (U.S. Patent No. 6,778,238) and further in view of Matsumoto et al. (U.S. Patent Publication No. 4,097,128). The Examiner has stated that Hack et al. and Moon et al., in combination, disclose all elements of the abovementioned claims, except *that the red light has a wavelength range from about 600 nm to about 700 nm*, which the Examiner has further stated is taught primarily in col. 20, lines 1–2, of Matsumoto et al.

Additionally, the Examiner has rejected claim 10 under 35 U.S.C. § 103(a) as being unpatentable over Hack et al. (U.S. Patent Publication No. 5,204,661) in view of Moon et al. (U.S. Patent No. 6,778,238) and further in view of Shannon et al. (U.S. Patent Publication No. 5,485,177). The Examiner has stated that Hack et al. and Moon et al., in combination, disclose all elements of the abovementioned claims, except *a single-layer circuitry*, which the Examiner has further stated is taught primarily in Fig. 4 of Shannon et al.

Further, the Examiner has rejected claim 17 under 35 U.S.C. § 103(a) as being unpatentable over Hack et al. (U.S. Patent Publication No. 5,204,661) in view of Moon et al. (U.S. Patent No. 6,778,238) and further in view of Huang et al. (U.S. Patent Publication No. 6,099,185). The Examiner has stated that Hack et al. and Moon et al., in combination, disclose all elements of the abovementioned claims, except *a light emitting diode [LED] to generate the*

*input light*, which the Examiner has further stated is taught primarily in the Abstract of Huang et al. rejected under 35 U.S.C. 103(a) as being unpatentable over *Wu*, US 2002/0030768 in view of *Moon et al.*, U.S. Patent No. 6,778,238.

The Applicants traverse the outstanding rejections of claims 1-7, 11, and 17 and submit that claims 1-7, 11, 17, and 18 are in condition for allowance. Claim 1 has been amended to include features previously presented in cancelled claims 8-10. Thus, no new matter has been entered by this amendment. As amended, claim 1 recites, *inter alia*, "a substrate including:

a plurality of pixel portions; and

at least one light sensing portion disposed to face corresponding to the red color pixel, the at least one light sensing portion sensing light provided through the corresponding red color pixel, *the at least one light sensing portion including multiple light sensing portions each of which is disposed at an area having a selected number of the pixel portions;*

*wherein a number of the light sensing portions is smaller than a number of the pixel portions in a unit area and, wherein further, the light sensing portions each have a size smaller than a size of the respective pixel portions."*

Since the features previously recited in claims 8-10 have been incorporated into amended claim 1, the Applicants will address the rejections of claims 1 and 8-10 together. The Applicants submit that the features recited in claim 1 are neither taught by, nor rendered obvious in view of the cited art references. In combination, none of the relevant cited references, namely, *Wu*, *Hack*, *Moon*, and *Shannon*, teach or make obvious each and every feature recited in Applicants' claim 1. In particular, none of the cited references teach a number of the light sensing portions being smaller than a number of the pixel portions in a unit area. Furthermore, none of the cited references teach the light sensing portions each having a size smaller than a size of the respective pixel portions as suggested by the Examiner. The Examiner relies upon Figure 2 of *Hack* and, alternatively, Figure 4 of *Shannon* as allegedly teaching the light sensing portions each having a size smaller than a size of the respective pixel portions. However, *Hack* does not explicitly state that the light sensing portions are smaller than the respective pixel portions. The Examiner notes that the drawing may not be drawn to scale and so it may be argued that the light sensing portion actually occupies the entire pixel portion area. The Applicants submit that there is no teaching in *Shannon* that the light sensing portion is smaller than a respective pixel portion. Figure 2 of *Shannon* is similar to *Hack* in that the drawing may not be of proper scale. Upon a review of the

Hack reference and supporting description, there is no teaching that the light sensing portion is smaller than a respective pixel portion. Accordingly, none of the cited references teach or make obvious all of the features recited in claim 1.

For at least these reasons, the Applicants submit that claim 1, as amended, is not rendered obvious in view of the cited references, either alone or in combination. Reconsideration of the outstanding rejection is respectfully requested. Claims 2-7, 11, 17, and 18 depend from what should be an allowable claim 1. New claim 18 further clarifies the color pixels recited in claim 1. Support for new claim 18 may be found, e.g., on page 6, lines 15-16. New claim 18 should be allowable as depending from an allowable base claim. For at least these reasons, the Applicants submit that claims 2-7, 11, 17, and 18 are in condition for allowance and respectfully request reconsideration and withdrawal of the outstanding rejections.

**Conclusion**

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicants' attorney hereby authorizes that such fee be charged to Deposit Account No. 06-1130.

Respectfully submitted,

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